Earl, here are comments from our review of the EE/CA. Specific comments about the contaminants of potential concern (COPCs) and the streamlined risk assessment (SRA; Sections 4 and 5), based on the review by E & E toxicologist Alma Feldpausch, have already been sent to you.

1. General: Overall, the EE/CA was prepared in accordance with the guidance set forth in the EPA document, *Guidance on Conducting Non-Time-Critical Removal Actions under CERCLA* (1993). The EE/CA incorporates the majority of the EE/CA elements required by that document; however, two are missing: Executive Summary and Determination of Removal Schedule.

2. Section 2, General: Please refer to the former 500,000-gallon fuel oil tank in the site background discussion (and any other potential sources of petroleum contamination), as this appears to be the main source of petroleum contamination. This is not mentioned until Section 4.6.1, where it is referred to as "the source" and it is not made clear until referring to Figure 4-3 (LNAPL Plume).

3. Section 2, General: A subsection should be added to Section 2 that describes the topographic changes to the site, the construction of the original Milwaukee Road facility, and the demolition and razing of the former facility structures.

4. Section 2.2.2 (p. 6): This section should discuss the demolition of the railroad roundtable and associated maintenance facilities, who performed it, and the fate of the demolition debris.

5. Section 2.2.1 (pp. 5-6): When did Potlatch buy the property, and from whom? Who did Mr. Bentcik buy his property from in 1996 (Section 2.2.2)?

6. Section 2.2.3 (p. 6): Given that the historic railroad included electric locomotives, this section should include the potential use of PCBs.

7. Section 2.3.2 (p 7): Instead of "Soil," this subsection should be described as "Local Geologic Conditions." Local soil conditions can be discussed in this section. The use of the generic term "soil" should be avoided and used in proper context. Subsurface conditions are different across the site and should be reported in more detail.

8. Section 2.3.4 (pp. 8-9) does not discuss the spring located in the hillside above the former location of the 50,000 gallon tank as a source of water to the site. Besides being a source of water for the Bentcik property, this spring may provide a hydrologic boundary.

9. Section 2.4 (p. 12). The reference to the EPA 2007 removal assessment report actually references the site-specific sampling plan for that investigation.

10. Section 2.5 (p 13). The discussion of previous removal actions doesn't discuss on whose behalf (i.e., Potlatch) the work was performed. Also, this section doesn't discuss the failures of the removal actions (i.e., why additional removal actions were/are necessary)

11. Section 2.5.2 (p. 13). This section should specify the quantity of LNAPL that was recovered and sent off site.

12. Section 2.5.2 (p. 13) and Figure 2-4: The second paragraph of Section 2.5.2 states, "*The bottom elevation of the barrier was designed to be sufficient to prevent migration of free product to the river, but not significantly impact groundwater. Therefore, groundwater was allowed to flow underneath the vertical barrier and to discharge to the river.*" What is the as-built bottom elevation? Did the

author review as-built documents for the wall, or were plans only reviewed? Figure 2-4 indicates the "Proposed Containment Wall Location" as opposed to the actual location. Design and as-built information should be reviewed for potential design or installation deficiencies.

13. Section 2.5.2 (p. 14). This section doesn't discuss the possibility that LNAPL could also be bypassing the barrier horizontally (i.e., to the west/downgradient).

14. Section 2.5.2 and Section 2.5.3 (p. 14): The third paragraph of Section 2.5.2 states that floating product was observed seeping into the river in 2005; however, Section 2.5.3 says that IDEQ recommended the use of oil absorbent booms to maintain LNAPL seeps in 2002. Please clarify.

15. Section 2.5.3 (p. 14). This section implies that booms have been placed most of the time seeps were observed, if not all the time. However, this is not true -- there were many times booms were not in place when seeps were observed by EPA or DEQ.

16. Figure 2-1 shows the historical layout of the railroad workings at the Avery Landing site, but the depiction of the shoreline appears to be inaccurate. Examining the black and white historical railroad sketch shows the St. Joe shoreline much closer to the edge of the roundhouse and the buildings west of the roundhouse.

17. Section 3: Please provide an introduction to the EE/CA field investigation within this section or Section 2, summarizing what is known from previous investigations regarding the sources of contamination, and why more information was needed in the areas investigated for the EE/CA. For example, Section 3.1.3 states that soil borings were advanced in the vicinity of the former 500,000-gallon fuel oil tank—the reason for the focus in this area should be discussed in the introduction to the investigation.

18. Sections 3 and 4: There does not appear to be any discussion of the estimated volume of contaminated material in either Section 3 or 4. The first mention of any quantity is 106,000 tons, which is introduced in Section 8.3 (p. 93). The estimated amount of material should be presented relative to the field activities and the nature and extent of contamination, and the rationale for any estimate should be discussed.

19. Sections 3.1.1 and 3.1.2 (pp. 15-17): The draft EE/CA fails to mention that waste disposal pits were encountered in many areas. The waste disposal pits included household garbage, prior remediation equipment (oil booms), and burned items. Dioxin/furans may need to be considered as a COPC.

20. Section 3.1.2 (pp. 16-17): The wedge of black soil observed across the site at approximately 2 feet bgs conflicts with the observations presented later that the upper 3 feet of soil appeared to be clean across the site (p. 98).

21. Section 3.1.2 (p 17): Asphaltic particles were present in some samples and presented problems with the soil washing. It's possible that in the past, asphalt (or heavy oil that became asphalt-like) was applied across the rail lines or other areas for dust suppression and/or insect avoidance.

22. Section 3.1.5.1 (p. 19) and Table 3: The text says that sample GTP3-5 contained PCBs, but the results in table 3 indicate that none are detected. Also, in Table 3-1, one result exceeds the screening level but is not indicated with boldface type.

23. Section 3.2 (p. 21). In the past and in other sections of the report, Potlatch/Golder has referred to the Bentcik property as the "eastern portion [or half] of the site" (cf. Section 2.1, Page 4), and the

Potlatch property as the “western half of the site.” However, the existing monitoring wells are located on both Potlatch and Bentcik properties, which they describe here as the “eastern portion of the site.”. They need to be more careful with the use of terms like "eastern" or "western," because some times they refer to property ownership and sometimes they refer to the geographic areas of the site (regardless of property ownership).

24. Section 3.2.2 (p. 22). The report should describe the thickness of product detected and compare them to historic results.

25. Section 3.2.4 (p. 23): Should the drop tubes be maintained in the monitoring wells after the end of the second groundwater sampling event, until the removal action is completed?

26. Section 3.2.5 (p. 24). In Section 2.1 (p. 4), the draft EE/CA says that the domestic well was abandoned in 2009. They should clarify that abandonment occurred after sampling, if that’s how it happened.

27. Section 3.2.9.1 (p. 27, last paragraph): “*The hydraulic conductivity results from slug tests are not very accurate and may in reality vary by up to an order of magnitude from the above referenced results.*” Assessing hydraulic conductivities from slug testing tells little more than the properties of the filterpack surrounding a well. Inferring aquifer property potentials requires a constant rate test.

28. Section 3.3 (p. 28): The discussion of the near shore investigation should take into account the past historical shoreline location and the fact that the up-river background sampling locations do not reflect ideal background locations because of the presence of the historic rail line connecting the Avery Landing site and the town of Avery.

29. Section 3.3.1.1 (pp. 30-31). Is the oil staining observed on the rocks 4-5 feet from the river bank caused by petroleum seeps from the site?

30. Section 3.3.1.2 (p 31). “*It is suspected that this PCB detection is from an upstream, off-site source.*” On what basis have they made this conclusion? Given that the Avery Landing site is a former railroad roundtable and maintenance facility for an electric railroad, the conclusion that PCBs in sediment may not be related to historic site use seems questionable. Aroclor 1260 was detected in subsurface soils, LNAPL, and river sediment. It seems more likely that the source is from the Avery Landing site or related power station with PCBs in the town of Avery than some other upstream source.

31. Section 4, General Comments:

    a. Please include a discussion of the original sources of petroleum, PCB and metals contamination.

    b. Data gaps still exist where the extents of petroleum contamination have not been determined, including 1) along highway 50 both east and west of the historic 50,000 gallon oil tank; 2) west of TP-8, south of TP-2, and TP-3; and 3) the area near TP-5.

    c. COPCs should be the same for soil, sediment, groundwater, and surface water, whereby if any of these mediums contain detectable, reproducible COPCs above an action level, then all the mediums have the potential to contain COPCs and those that have been detected above an action level need to remain as COPCs for all affected media. The preliminary list of COPCs may not have been identified in certain media at or above action levels because we have not investigated thoroughly across the site.

d. The samples listed as coming from upgradient "background" locations are probably not representative of true background conditions, because the locations are still within the proximity of the majority of contaminated media. True background samples would come from locations across the river, or from upstream of the town of Avery.

32. Section 4.1.1 (p 46) says this about the extent of the LNAPL plume:

> "*The plume delineations were based on observations of free product in test pits and soil borings and soil sample analytical results. The difference between the plume delineation made by Hart Crowser in 2000 versus E & E in 2007 is that the plume may have grown larger by 2007 and may have extended further down-gradient to the west and southwest.*"

However, this conclusion is later contradicted by this conclusion in Section 4.5 (p. 62):

> "*The 2007 E & E report concludes that the area of the free product plume has grown to the west and southwest since the 2000 Hart Crowser delineation. However, Golder disputes this conclusion because of the data gaps that remained for the western side of the Site after the 2000, 2006, and 2007 investigations."*

START's observation in 2007 that the plume may have grown larger from 2000 to 2007 was based on the results of the 2000 Hart Crowser investigation (performed on behalf of Potlatch), which claimed to delineate the western extent of the plume (e.g., the Hart Crowser report did not identify the western edge of the plume as a data gap, as implied by the draft EE/CA).

33. Sections 4.1.4 (p. 49), 4.2.3 (p. 54), and 4.3.3 (p. 57). PCBs need to be presented as a COPC in soil, sediment, and groundwater, not just as a component of the LNAPL. The argument that the absence of PCBs from the LNAPL along the near shore indicates that PCBs are not being discharged to the river by on-site sources is not sufficiently supported. Sampling frequencies and temporal boundaries may be the reason no PCBs have been observed yet in LNAPL along the shoreline.

34. Section 4.3.1 (p. 56). The discussion about potential contamination from LNAPL in EPA samples during the 2007 removal assessment is disingenuous, because it ignores comments from EPA in response to similar allegations that were made during the review of planning documents.

35. Section 4.8.2 (p. 71) discusses heavy asphaltic materials in the solid phase and that DNAPL is not suspected to be present at the site. However, no evidence is given to support this claim. DNAPLs still remain as a potential site contaminant and is a data gap due to the past use of bunker C fuel.

36. Sections 4 and 6: Soil, sediment and groundwater should be divided into separate operable units (OUs) within Section 4. The removal action objectives (RAOs) would then address each OU, as appropriate.

37. Section 5.3.3.2 (p. 83): "*Therefore, the background river sediments have been impacted from off-Site anthropogenic sources not attributable to the site.*" Historic railroad activities extended from the site to the town of Avery to the east. The argument that impacts to sediments are not attributable to historic site-related activities is not well supported.

38. Section 6: Based on the above comments for Sections 4 and 5, the RAOs in Section 6 do not adequately address site risks and should be modified. Essentially, the RAOs are to prevent humans and ecological receptors from direct contact with undefined areas of surface soil, and to control LNAPL discharge.

39. Section 6.1.1.2 (p. 85). The emphasis on "aquatic organisms" suggests that that waterfowl and other avian species were not considered in the ecological risk assessment.

40. Section 7: The identification and screening of removal technologies for use in assembling removal alternatives for the site is sufficient for an EE/CA evaluation. Table 7-1 is especially helpful in streamlining the process, while including the majority of potential removal technologies. The "fatal flaw" argument, while it may be appropriate for the EE/CA, is not specifically mentioned in EPA guidance for EE/CAs. However, while Table 7-1 is fairly comprehensive, there should be more discussion of these removal technologies in the text of Section 7.

41. Section 7, Table 7-1: START was surprised to see ex situ thermal desorption not retained for further discussion, and we would like to see a discussion of the rationale for this decision.

42. Sections 8 and 9: The nature and extent of contamination requires additional investigation and clarification as indicated in previous comments (e.g., questions remain regarding PCB and metals contamination, and whether groundwater and sediment pose a greater risk than is currently acknowledged). However, with respect to LNAPL containment and recovery, the overall development of removal action alternatives is sufficient.

43. Section 8.1.2 (p. 88): This section states, "*While we do not know with certainty, the apparent problem with this system is that the plastic liner used for containment has gaps (particularly at the bottom) through which LNAPL can move.*" The author should indicate why this is likely to be the problem. Two possibilities are presented in Section 2.5.2, and Sections 3.3.2 and 4.7.3 discuss LNAPL seeping from underneath geotextile fabric at RS-3. Section 4.7.3 states, "*…observations made during reconnaissance activities in 2009 indicated LNAPL seeping from underneath a geotextile fabric that terminates at the shoreline. It is suspected that this geotextile fabric is one component of the impermeable wall installed by Hart Crowser in 2000.*" As stated in Comment 3, design and as-built information should be reviewed and used in support of this hypothesis.

44. Section 8.1.4 (p. 89): None of the removal action alternatives include sediment removal, even though one of the RAOs is to reduce ecological direct contact and ingestion exposure to impacted sediments. A poor argument is provided as to why sediment should be left as-is. In addition, based on comments for Sections 4 and 5, the EE/CA may not have adequately evaluated the risk of sediment contamination to human and ecological receptors.

45. Section 8.1.5 (p. 90): In place of sediment removal, natural attenuation is suggested in this section. Even if natural attenuation were acceptable, a study would be required to prove that the process would be applicable for the site contamination. The implementation of this study and the associated costs are not included in the removal action alternatives description or analysis. The EE/CA confuses "Do Nothing," "Natural Attenuation," and proceeding with the status quo. As noted below, "Do Nothing" means exactly what it implies. "Natural Attenuation" means a site model has been developed that indicates that contamination will decrease over time. Periodic sampling is performed to verify that the model is accurately predicting the attenuation. If it is not, then other removal/remedial measures are implemented. The status quo, replacing oil booms, is nether "Do Nothing" nor "Natural Attenuation". Historically, "Natural Attenuation" has been used for groundwater plumes where the plumes have not extended beyond the RP's property. Since the plume at this site is contaminating surface water and the sediment on the State of Idaho's property (the river bottom), "Natural Attenuation" does not seem appropriate.

46. Section 8.2.1 and 8.2.2 (p. 90): No Further Action (Alternative A) should mean absolutely nothing is done at the site, and the costs would be $0. Institutional Controls (Alternative B) should be referred to as "Institutional Controls and Continued Use of Current Containment and LNAPL Recovery System."

47. Section 8.2.2 (p. 91): Institutional controls such as placing booms in the river and collecting LNAPL are presented as if they have been successful in the past. However, they have not been successful, which is the reason for the current non-time critical removal action.

48. Section 8.2.5: What is the definition of a "hot spot" at the site? How would the "observational approach" determine if contaminated soils exist below the groundwater table?

49. Section 9: The cleanup standards are listed as part of the RAOs in Section 6. Assuming these cleanup levels adequately address the site risk to humans and ecological receptors, they should be used to develop areas and volumes that would be used in the cost evaluation for the removal action alternatives. The EE/CA should include a figure depicting the areas to be addressed by the removal action based on the RAOs and cleanup levels (for example, see Comment 51). Furthermore, the volume calculations associated with these areas should be presented. These volumes would be used in the cost estimates as part of the removal action alternatives evaluation.

50. Section 9: Overall, the removal action alternative descriptions exceed the requirements of an EE/CA evaluation. Figures 9-1 through 9-14 provide clear plan and cross section depictions of Alternatives C through G, providing more detail than required.

51. Section 9.1.6 (p. 96): A clean soil cover is included for Alternatives C through F over areas where "contaminated soil remains after completion of removal actions." This apparently addresses RAO 1, defined in Section 6: *"Reduce exposure of potential future full-time residents to contaminated near-surface soils via direct contact and ingestion pathways. The COCs for surface soil are carcinogenic PAHs."* These contaminated areas where a soil cover is required should be depicted in a figure.

52. Section 9.1.6 (p. 96): The streamlined risk evaluation may not have given adequate consideration to burrowing terrestrial wildlife (see Alma's Comment 2-7). Upon reevaluation of the risk of soil contamination to ecological receptors, a critter layer (constructed of 4-inch minus rock or similar material to prevent exposure to underlying soils) may be required beneath the soil cap under Alternatives C through F.

53. Section 9.1.8 (p. 99): This is the first mention of buried trash, although debris was briefly mentioned in Section 2.3.2 (p. 7). Please refer to Comment 19.

54. Section 9.2.8 (p. 104): "*Institutional controls would not be required in this alternative because, upon completion of the removal action, RAOs would be achieved. Because no contamination above cleanup criteria would remain on the Site after completion of this alternative, it has been assumed that no long-term maintenance and monitoring would be required.*" Some type of monitoring and site control to determine that this removal alternative (Alternative G – Treatment of the Entire LNAPL Plume Area) achieved the RAOs. Also, it is highly unlikely that it will practicable to remove all contaminated material.

55. Section 10: Overall, this section provides a good evaluation of the removal action alternatives, and is in accordance with EE/CA guidance.

56. Section 10.1.1 (p. 106): The list of RAOs needs to include reduction of ecological exposure to LNAPL migration to the river. Not all alternatives prevent releases of LNAPL to the river, like natural attenuation and institutional controls.

57. Section 10.3 (p. 113): Overall, the total costs for the removal action alternatives appear relatively reasonable. However, the volumes used in the cost analysis (that should have been calculated as described in Comment 49) are not discussed. Furthermore, the calculated quantities (for materials, etc.) should be described in the assumptions for each cost table. Only a few assumptions were discussed in the text under each alternative in Section 9. There is no way for the reader to correlate the quantities used in the cost tables (Tables 10-2 through Table 10-9) with calculated contamination volumes, or assumptions made.

58. Section 10.3 (p. 113): This section refers to Appendix L for cost details in addition to the cost tables (Tables 10-2 through 10-9). The cost tables present no detail at all, and Appendix L provides unit costs that were used and provides sources for the unit costs. Appendix L does not provide any "detail." Most of the unit costs provide a source of "Estimate," and the "Item" column provides little information describing what exactly is included in that unit cost. Not only is the reader unable to decipher what the unit costs include, but little correlation is provided within the cost tables to enable the reader to verify which unit costs were used from Appendix L. A spot check of the cost tables revealed that some unit costs are not provided in Appendix L, and many of the line items in the cost tables do not match the line items in Appendix L. Either a numbering system would be helpful for the correlation of unit costs from Appendix L with the cost tables, or the appropriate information from Appendix L should be included in each cost table. In addition, more detail is needed to indicate what exactly is included in the unit costs, and "Estimate" as a source for unit costs in Appendix L should be defined (e.g., is it based on professional judgment?).

59. Section 10.4 (p. 113): The recommendation of Alternative B (Institutional Controls) is surprising. Not only may the deficiencies identified for Sections 4 and 5 identify additional site risks than those that are currently taken into account in the RAOs, but institutional controls are usually meant to be implemented in addition to removal actions, not to stand alone. Alternative B does not meet the criterion of effectiveness adequately enough to outweigh the lower cost. At the least, Alternative C should be implemented with the possibility that the system could be expanded if more of the existing containment system were to fail in the future (this possibility is mentioned in Section 8.1.2, p. 88).

60. Section 10.4 (p. 113): The statements made in the last paragraph of this section are irrelevant for this document and should be removed.